Applicant respectfully disagrees with this rejection, but has amended claims 1 and 10 herein to more clearly recite the invention in a manner believed to overcome this rejection for the reasons given hereinbelow.

The Examiner in the rejection, made final, of the parent application refers to the added limitation "the serial arrangement of a microcontroller and a digital-to-analog converter" read on audio controller 21 ("microcontroller") and e.g. DC signal element 83 (inherent digital-to-analog converter) as shown in Figs. 7 and 10 of Efron, et al. The Examiner's reference to a DC signal element 83 as being an inherent digital-to-analog converter is misleading and in error. More particularly, Efron, et al with reference to the DC signal element 83 in column 20, lines 23-29 describe:

Turning now to Fig. 7, a schematic diagram is shown which produces the audio test tones. A test tone generator and a multiplexer of 49 contains a plurality of function generators including a 6734 generator 73, a 1KHZ tone generator 75, a 60KHZ tone generator 77, a 7KHZ tone generator 79, a sweet generator 81, and a DC source 83.

Efron, et al with reference to the audio controller 21 in column 20, lines 49-55 describe the following:

Basically, audio controller 21, over line 72, selectively, and at a video vertical repetition rate, enables one or two of the function generators feeding multiplexer 71. Multiplexer 71 then sums the output of the selected function generator, and outputs the

desired combination shown in FIG. 6 over lines 76 and 78 to be routed to the input channels 1 and 2 of the tape recorder 11.

Efron, et al with further reference to the plurality of function generators shown in Fig. 8 describe in column 21, lines 9-18 the following:

The signal symbol shown in Fig. 8 have the following correspondences:

T refers ...;

K ...;

M ...;

S ...;

and a blank line represents a DC or zero signal component.

It should be noted that the blank line or zero signal component is derived from the DC source 83.

It should be further noted, that a DC or zero signal component is not a predetermined waveform.

Efron, et al utilization of a DC source to represent a blank line or a zero signal component is not the function of the present invention that is recited in claims 1 and 10.

Applicant in claim 1 recites "a signal generator comprising a serial arrangement of a microcontroller and a digital-to-analog converter for generating the presence of a predetermined waveform for a predetermined duration which is routed to the record input on the tape recorder."

Similarly, applicant in claim 10 recites "providing a signal generator comprising a serial arrangement of a microcontroller and a digital-to-analog converter, said microcontroller having a lookup table comprising a plurality of selectable predetermined waveforms each in a digital format and the generating the presence of one of said selectable predetermined waveforms for a predetermined duration and which waveform is routed to the recording part of the tape recorder."

Applicant in claims 1 and 10 recite a microcontroller and a digital-to-analog converter that generates the presence of predetermined signals which can not be achieved by the audio controller and a DC source of Efron, et al that generate a blank signal representative of a DC or zero signal component.

Nothing in Efron, et al utilizing a DC source for a blank signal or zero signal component or Anderson taken alone or in combination teaches, suggests or renders obvious the subject matter of applicants claims 1 and 10 that recites the cooperative interaction of a microcontroller and a digital-to-analog converter to serve as a signal generator providing the presence of waveforms.

The Examiner in the Advisory Action of June 6, 2000 of the parent application Serial No. 09/100.701 states the new limitations of claims 1 and 10 raise new issues, supra, and also raise the issue of new matter since the originally filed specification does not appear to support the use of such a new limitation. The Examiner goes on further to state "applicant's arguments [Amendment-After-Final] are drawn to the new limitations which have not been entered and hence the Final Rejection is maintained for reasons of record." Applicant respectfully disagrees with these statements for the reasons given below.

Applicant on page 9, line 24 through page 11, line 13, of the original specification of the parent Serial No. 09.100,701 describes the use of a serial arrangement of microcontrollers and digital-to-analog converters, with the microcontrollers having accessible and retrievable look up tables defining predetermined waveforms in a digital format which are routed to the digital analog converter. Utilization of a microcontroller is in conformity with the objects of the present invention, one of which is described on page 2, line 20 through page 3, line 3 as providing digital techniques to verify the operational and performance of tape recorders. The utilization of a signal generator having microcontroller capabilities further enhances another object of the present invention described on page 3, lines 13-15 as providing signal processing techniques that employ Fast Fourier Transforms so that the complex signals may be broken down in to elementary components thereof to ease the analysis task needed to determine the proper performance for the tape recorder.

More particularly, with regard to the support of the original specification, applicant on page 10, line 16 through page 11, line 13 state:

In general, each of the microcontrollers 68 and 72 has an accessible and retrievable look-up table defining predetermined waveforms in a digital format which are respectively routed to the D/A converter 70 and 74 for providing the corresponding analog outputs therefrom. Further, the microcontroller 72 preferably provides predistorted predetermined waveforms that reduce modulation distortion, to be described hereinafter with reference to expressions (1) and (2), by way of signal path 80. If desired, although not preferred, the microcontrollers 68, and 72 may be provided by a single microcontroller preferably so long as the single microcontroller provides for a predetermined and predistorted signal on path 80 (emphasis added).

The microcontrollers 68 and 72 provide the means for generating the predetermined waveforms digitally with amplitude steps being controllable in 0.04dB fine tune steps which are advantageously handled by the 8 bit D/A converters 70 and 74. The predetermined waveforms may be selected by the microprocessor 54 placing appropriate data on respective control and data lines 76 and 78. The D/A converters 70 and 74 preferably have two gain control inputs which may be utilized to allow a pseudo effect of increasing the dynamic range of the amplitude of the waveform stored in the microcontrollers 68 and 72 and generated by the signal generator 38 (emphasis added).

From the above, it is clearly seen that the original specification (generating predetermined waveforms on signal path 80) does support the language of claim 1 "a signal generator that generates the presence of a predetermined waveform for a predetermined duration which is routed to the record input of the tape recorder."

Applicant provides a unique combination of signal generator having a microcontroller for generating the presence of predetermined waveforms for predetermined durations operatively cooperating with the digital-to-analog converter.

The utilization of such a combination provides for flexibility and digital signal processing techniques such as applying Fast Fourier Transforms. The Examiner's suggested combination of Efron, et al (generating a blank line or zero signal) and Anderson does not render obvious these features.

For the reasons given hereinabove, it is respectfully solicited that the 35 USC §103 rejection of claims 1 and 10 be withdrawn from the prosecution of this continuation application and that these claims be found allowable.

Claims 2, 3, 6, 7, 9, and 11 are dependent on independent claim 1 and thus recite further details of applicant's invention. These dependent claims are considered patentably distinguishable over the cited references for the reason given for their independent claim 1.

For the reasons given hereinabove it is respectfully solicited that the 35 USC §103 rejection of claims 1-3, 6-7, 9, 10 and 11 be withdrawn and that these claims be found allowable.

In summary, it is believed that claims 1-3, 6, 7, 9, 10, and 11 are now in condition for allowance and such allowance is respectfully requested.

Respectfully submitted,

Kenneth M. Prockup

By: Ron Billi

Ron Billi
Attorney for Applicant
Registration No: 34,085
Office of Counsel
Bldg. 435; Suite A
NAWC Aircraft Division
47076 Liljencrantz Rd; Unit #7
Patuxent River, MD 20670

Tel. No.: (301) 342-1839 Ext. 10
Fax. No.: (301) 342-1840